

# erraScope

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focus on

AGENDA 21

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Costa Rica has set a goal of preserving 25% of its land mass in a natural state.

## Meeting the challenge of biodiversity

Denmark and Costa Rica are showing that countries on opposite ends of the economic spectrum are equal to the challenge of the Biodiversity Convention.

**T**HEIR ACTIONS, IF PURSUED BY other nations, could have far-reaching implications as the world attempts to stem the eradication of species due to human development.

Reflecting concerns that we are facing a wave of massive biological extinction, the Biodiversity Convention promotes an equitable sharing of benefits between the developing nations that possess biological resources and the industrialized nations that seek to use them for medical or agricultural purposes.

The Convention, a major achievement of the 1992 Rio Conference, sets out commitments to preserve the world's dwindling stock of plant and animal species. It also provides for the transfer of financial and technical assistance from developed to developing countries, where the greatest losses are occurring.

However, wealthy nations, constrained by economic difficulties, are not delivering

the level of aid anticipated after Rio. For developing countries, that means either abandoning their commitments or finding other means to meet them.

"The signal we are getting is for decreased aid—just the opposite of what

we expected," says Dr. Rodrigo Gamez, Director of the National Institute for Biodiversity (INBIO), an independent, non-profit organization in Costa Rica.

Therefore, INBIO, along with the Costa Rican government, has embarked on a program to preserve the country's biodiversity by treating it as a resource from which it can obtain economic, intellectual and spiritual value.

"We are totally convinced that the best way to preserve our

biodiversity is to derive intellectual or economic value from the resource," Dr. Gamez says. "To assign a value, you have to know what it

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**"The best way to preserve our biodiversity is to derive intellectual or economic value from the resource."**

— Dr. Rodrigo Gamez,  
INBIO, Costa Rica

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is and promote a useful purpose for it."

To that end, INBIO is conducting an inventory of Costa Rica's estimated half-million species, only about 15% of which have been identified to date. And it has developed partnerships with multinational pharmaceutical giants like Merck and Bristol-Myers, the British Technology Group, and the U.S. National Cancer Research Institute, to extract value from biological material.

Dr. Gamez's strategy hinges on developing scientific capability at home so that Costa Rica can benefit from the economic value generated by research, development and production of biotechnology products. It also seeks to extract value from ecotourism, basic research and other activities.

"What's important is the (value) you add and the equity of how you distribute the value," Dr. Gamez says.

The Costa Rican government, meanwhile, has made biodiversity a priority as part of a national sustainable development program. Under the initiative, all government ministries must produce sustainable development plans, and a goal has been set to preserve 25% of the country's land mass in a natural state.

Costa Rica, like Denmark, had already moved extensively to protect its biodiversity before the Convention came into force. However, unlike Costa Rica, Denmark has found there is little it can add to past measures to preserve wild animal and plant species, as well as their habitats.

"Almost all of what's left of nature in Denmark is already protected," says Veit Koester, Head of Division of Denmark's National Forest and Nature Agency. Pro-

tecting nature has long been a priority in the small, densely-populated country, where "no square metre has not already been affected by man," he notes.

With just 45,000 square kilometres of territory, Denmark has set aside 10,000 square kilometres as protected area. "It's

difficult to find habitats that aren't protected," Koester says.

He feels his country's main role in supporting global biodiversity is to bolster financial assistance to developing countries, a goal that is being realized by increasing aid to 1.5% of GNP by the year 2000, from 1% at the time of the Rio Convention. Half

of the increase has been earmarked for environmental programs like biodiversity preservation.

"The main purpose of the Convention vis-à-vis the Third World is to provide financial resources," Koester says. He describes as "exaggerated" the belief that extracting value from genetic resources will provide a sufficient financial incentive for developing countries to abide by the treaty.

Whatever approach turns out to be most effective, Denmark and Costa Rica provide hopeful beacons for the preservation of the world's species.

Nevertheless, how effective the Biodiversity Convention will be remains to be seen, says John Herity, Director of Environment Canada's Biodiversity Convention Office.

"If the treaty is followed in the spirit in which it was created, there could be a very positive impact," he says. "The possibility exists to ignore it. The possibility also exists to use it to do a great deal of good in the world. I am optimistic." ☉

## France gets a little bit greener

FRANCE has passed its first cross-sectoral environmental law, officially introducing:

- the precautionary principle
- the polluter pays principle
- the principle of rectification at source

The new legislation — dubbed the "Barrier Law" by the French media, after Environment Minister Michel Barnier — focuses on four main areas:

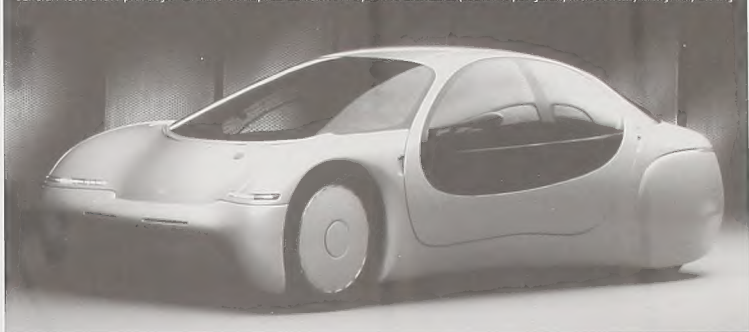
- waste management and pollution prevention
- public participation
- natural risk prevention
- nature protection

One of the more innovative aspects of the new law is the establishment of a "national public debate commission." Made up of the various interest groups, the commission will organize public debate on projects likely to have significant environmental impact. Projects can be referred to the commission not only by the Environment Ministry and regional authorities, but by members of parliament and nationally-approved environment protection groups.

## Rich countries beat a retreat on aid

INDUSTRIALIZED democracies cut official aid to developing nations in 1993, just one year after agreeing at the Rio Earth Summit that the Agenda 21 sustainable development plan would require substantial transfers to the Third World. Aid provided by member countries of the OECD's Development Assistance Committee fell in 1993 by more than US \$5 billion to US \$55.9 billion. The latest figure equates to 0.3% of GDP — the lowest level for two decades — making the 0.7% target set at Rio even farther out of reach.





 **focus on**  
**TECHNOLOGY**

# The drive toward the supercar

Led by a U.S. initiative to develop super-efficient, low-emission vehicles and the spectre of tougher regulations, the world's automobile industry could face dramatic change in coming years.

**D**ESPITE IMPRESSIVE GAINS IN mileage and emission controls since the 1970s, concern over pollution, climate change and energy security are likely to drive further advances. While market forces may ultimately play an important role, for now regulators are blazing the trail, led by California regulations demanding that 10% of cars sold in the state by 2003 must be "zero-emission vehicles," namely battery-electric cars, given current technology.

However, the batteries available today are extremely heavy and bulky, with a high cost and limited driving range relative to conventional vehicles. Therefore, some visionaries have proposed revolutionary automobile design. Foremost among these is the Colorado-based Rocky Mountain Institute (RMI)'s Amory Lovins, who is campaigning for new-generation vehicles incorporating lightweight composites, streamlined designs, "hybrid-electric" drives and flywheels to recover

braking energy. RMI claims that most of the technologies needed to build the so-called "hypercar" exist today and that willingness to change is the main barrier to achieving its goal for a 0.8 L/100 km (300 mpg) vehicle.

While the hypercar would result in extraordinary fuel efficiency improvements over today's 8.5 L/100 km (27.5 mpg) average, the impact on the auto industry and its suppliers may be even more remarkable. Auto makers would have to dramatically transform their manufacturing techniques, and suppliers of major "old technology" inputs like steel would be out of luck.

However, not everyone shares RMI's vision, among them the U.S. Big-Three auto makers, which have joined forces with the U.S. government to produce a 2.9 L/100 km (80 mpg) vehicle within a

decade. "It (the hypercar) is not conceivable in the next generation of vehicles," says Scott Fosgard, Communications Director for the United States Council for Automotive Research (USCAR), a

research umbrella run by Chrysler, Ford and General Motors. "It's pretty clear that getting up to three times today's fuel efficiency is a stretch enough."

Emissions of key pollutants like carbon monoxide, hydrocarbons and nitrogen oxide have been

wrenched down by over 90% since emission controls were introduced in the 1970s, and further improvements are slated in 1995 and 1996.

Further change is being driven by USCAR, which is conducting research under a U.S. federal government initiative called the Partnership for a New Generation of Vehicles. The project, backed by federal

**Japan's Ministry of Transport plans to kick-start green vehicle production by promoting methanol and hybrid vehicles through low-interest loans and other financial incentives.**



funding that could reach us \$383 million in 1996, is looking at advancements in lightweight materials, engine efficiency, fuel cells and improved aerodynamics.

The aggressive mileage target comes hand-in-hand with the goal of improving u.s. competitiveness in automotive manufacturing. With vehicle "greening" efforts underway in the other two major automobile manufacturing jurisdictions, the European Union and Japan, that may prove to be the most important goal of all.

"There's going to be a day when there's less oil," Fosgard says. "Whoever can (develop a high mileage vehicle) that the marketplace can afford, they're going to do very well."

All three jurisdictions are looking at similar technologies in the quest for improved efficiency and emissions, although Japan and Germany so far have pursued a more voluntary approach than the u.s. Japan's Ministry of Transport, for instance, plans to kick-start green vehicle production by promoting methanol and hybrid vehicles through low-interest loans and other financial incentives. The greater Tokyo and Osaka areas have a long-term project to increase the use of low-pollution vehicles, including electric cars, to 300,000 by the year 2000.

Japan's targeted improvements in overall fuel efficiency, however, are relatively modest. The guidelines call for an 8.5% improvement over the 1990 level by the turn of the century.

Germany, determined to cut CO<sub>2</sub> emissions in accordance with the global Climate Change Agreement, has set out to reduce average fuel consumption by assuring the broad availability of 5 l/100 km compact vehicles by 2005.

However, Karl-Heinz Ziwicka, General Manager of Environmental Engineering for New Jersey-based BMW of North America, points out that debate in Germany over reducing the environmental impact of vehicles goes far beyond vehicle technology.

"The use of the automobile is much more in question than in the u.s.," Ziwicka says. Indeed, debate in Germany heralds more fundamental change such as a greater emphasis on efficient public transportation and land use reforms that encourage increased urban density. ☉

 *view from the U.S.*

# Greening the U.S. Farm Bill



The push for sustainable agriculture is gathering steam in the United States as opposing forces lock horns over the 1995 U.S. Farm Bill.

A MAJOR U.S. COALITION HAS formed under the banner of the Campaign for Sustainable Agriculture to lobby Congress for reforms that promote sustainable farming practices and preserve the family farm. The Campaign wants federal subsidies and incentives to reward good stewardship of land and resources through measures that promote reduced pesticide and fertilizer use, better soil and water quality, and other positive goals.

"There needs to be some reward for those farmers who go the extra mile in practicing good stewardship," says Chuck Hassebrook, Program Leader at the Stewardship and Technical Center for Rural Affairs in Walt Hill, Nebraska. The Center is one of more than 365 groups that have signed on to the Campaign, which includes such heavyweight organizations as the Sierra Club of the United States, the National Farmers Union and the Humane Society of the U.S.

Sustainable agriculture methods can benefit the environment by minimizing soil loss and chemical loadings to water and soil. Practices like integrated pest management (IPM) can reduce or eliminate pesticide use by emphasizing reliance on natural pest predators and other non-chemical controls.

Major adjustments face the agricultural industry as these practices gain ground. Their overall impact has put the u.s. Congress at the centre of a tug of war involving interests ranging from environmentalists and family farmers to major chemical companies and food processors.

On many issues, the opposing groups are far apart. For instance, some advocates of sustainable agriculture argue that

**"We think public policy ought to work with farmers to help them reduce their dependence on pesticides."**

— Chuck Hassebrook,  
Center for Rural Affairs,  
Walt Hill, Nebraska

**"Without high-yield, high-input technology, you would have more and more land put back under the plough... (less) habitat for wildlife."**

— Chris Klose, American Crop  
Protection Association

policies designed to reduce chemical inputs will benefit farmers and consumers through cost savings, while others argue that such policies lower yields, pushing food prices higher.

The Campaign is pressing for changes to u.s. commodity programs that would reduce chemical inputs by promoting crop rotations, a natural method of keeping pest levels down and restoring soil nutrients.

Hassebrook argues that current legislation rewards monoculture—a practice

# Public to have role in green enforcement

The environmental side agreement under NAFTA has broken new ground in international trade by opening the doors of the Commission on Environmental Cooperation (CEC) to public participation.

**A**MONG THE MOST INNOVATIVE provisions of the North American Agreement on Environmental Cooperation (NAAEC) is the opportunity for citizens and non-government organizations to file submissions with the Commission on Environmental Cooperation (CEC) contending that a NAFTA country is failing to effectively enforce its environmental law.

The Commission's Secretariat in Montreal will screen submissions for review by the Council of the CEC, made up of Environment Ministers from the three NAFTA countries. If two of the three Ministers find a submission has merit, the Council can direct the Secretariat to develop a record of the relevant facts for further consideration by the Council and possible public release.

Canada, the U.S. and Mexico, with the assistance of the Secretariat and the Joint Public Advisory Committee (JPAC), are developing a draft guide to the submission and factual record process. A major public consultation exercise in the three countries will soon be launched. The results of the public consultations will play a key role in determining the final shape of the submissions and factual record process.

"While each party will be consulting with its own stakeholders, the advice from the JPAC on this issue will be particularly important to the Council," Alex Manson, Director of North American and Global Strategies at Environment Canada. The JPAC is a tripartite commit-

**"If we can foster a cooperative relationship, that would be terrific."**

— Plaut



tee that provides advice to the Council of the CEC and gives a voice to environmental groups, business and others in the work of the Commission.

JPAC Chair Jacques Gérin is working with his committee to develop a plan for trilateral consultations on the complaints process. Part of the challenge in developing the guidelines is to find cooperative solutions to bridge economic gaps, as well as differences of legislative, political and social custom between the three countries.

"If we can foster a cooperative relationship, that would be terrific," says Jonathan Plaut, a U.S. JPAC member and Director of Environmental Quality at Allied Signal Inc. "JPAC has gotten off to a very good start in terms of fostering that kind of cooperation."

"The fact that there is a public complaints forum, as imprecise as it may be, is a constructive step in achieving better environmental quality in North America," says Peter Berle, President and CEO of the National Audubon Society in New York and also a U.S. JPAC member. ☐

that usually requires intensive pesticide and fertilizer applications — by providing support payments exclusively for major commodity crops like corn, wheat and cotton. This means that farmers forego subsidies if they plant rotation crops not on the support payment list.

"We think public policy ought to work with farmers to help them reduce their dependence on pesticides," he says.

Chris Klose, Vice President of the American Crop Protection Association, an umbrella group for U.S. pesticide makers, questions the impact of policies designed to reduce or eliminate pesticide use. "Without high yield, high input technology, you would have more and more land put back under the plough," he says, noting that in the U.S., large areas of farmland have been returned to nature with the advent of high yield agriculture. That means more habitat for wildlife, Klose says.

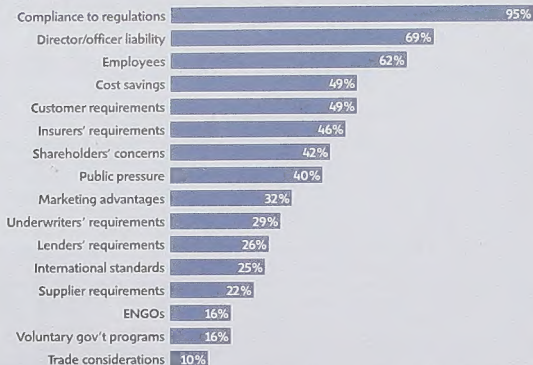
In Canada, recent developments in sustainable agriculture include the broadening of income support programs to include all commodities, not just selected cash crops. The changes are expected to encourage more diversified land use and crop rotations.

"The programs are designed to encourage diversification in order to fulfill a range of objectives," says Michael Presley, Chief of Environmental Assessment and Policy Development at Agriculture Canada's Environment Bureau. "Environmental benefits are among those." ☐



# Regulation still the big stick

## Motivating factors of Canadian executives

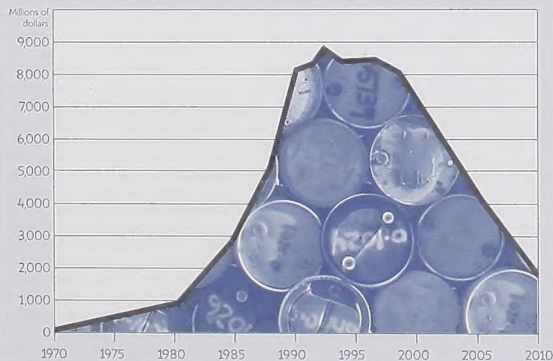


Source: KPMG Canadian Environmental Management Survey - 1994

Compliance to regulations is the largest motivating factor by far for Canadian organizations to take action on environmental issues, a recent management survey by KPMG Environmental Services indicates. Other principal motivators were director and officer liability, employees, cost savings and insurers' requirements. Taking up the rear for managers were environmental interest groups and voluntary government programs.

# U.S. hazwaste business heads for the dumps

## Historical and projected growth in U.S. hazardous waste management



Following exponential growth through the 1980s, the U.S. hazardous waste management business is past its peak, according to Environmental Business International Inc. The respected San Diego-based research and consulting firm forecasts rapid decline for the industry over the next 15 years. Future shrinkage will be brought on primarily by industrial waste minimization efforts, which have already clipped flows to off-site landfills and incinerators by 10% in 1993 and 1994.

# Pollution prevention gains momentum



the LEADING EDGE

Influential bodies like the European Union (EU) and the Organization for Economic Cooperation and Development (OECD) are pushing pollution prevention initiatives forward as governments seek smarter ways to protect the environment.

**P**OLLUTION PREVENTION, ALREADY being applied in the U.S. and northern Europe, is gaining momentum throughout the developed world, in countries like Canada.

The aim of this approach is to prevent the creation of pollutants in the first place, thereby eliminating costly waste and encouraging changes that can lead to lower production costs and increased efficiencies. Pollution prevention is the next phase in the evolution of environmental protection, which has traditionally focused on remediation and end-of-pipe controls.

After more than three years of negoti-

ations, member countries of the European Union are expected to finalize by mid-1995 the Integrated Prevention and Pollution Control directive. The legislation, which will be binding on all EU states, seeks to prevent, or where that is



**Integration:** Instead of regulating the release of pollutants through separate permitting systems for air, land and water, Britain's Integrated Pollution Control Policy bundles them together into a single system on an industry-by-industry basis.

## Where pollution prevention fits in

It's the important third stage in the evolution of environmental technologies towards sustainability

### Remediation

- After the fact
- Costly
- Ranges from low tech to high tech

### Abatement

- Captures or treats pollutants before release
- Consumes capital, energy and resources
- Generates a waste stream
- Fairly costly

### Prevention

- Changes product or process to reduce or prevent pollution
- More cost effective than abatement
- Reduces waste stream

### Sustainability

- Multiple benefits: environmental/ economic/ social/resource efficiency

Source: International Institute for Sustainable Development, Winnipeg

not possible, minimize the emissions of environmentally harmful substances.

"The Directive's main aim is to set common principles and procedures which member countries must follow when authorising their major polluting industrial sites," explains a spokesperson for the UK's Department of the Environment (DoE). Like Europe's Nordic countries, Britain is a step ahead of the EU, having introduced its own pollution prevention legislation in 1990. It seeks an EU directive that reflects its approach, and is pushing for early and rigorous application of its requirements.

Britain's Integrated Pollution Control Policy (IPCP) is one of the world's first environmental laws to take an industry-wide approach to pollution prevention. Instead

**Canada, currently without a formal pollution prevention law, is set to step into line with the U.S. and the EU.**



of regulating the release of pollutants through separate permitting systems for air, land and water; the IPC bundles them together into a single system on an industry-by-industry basis. Standards have been developed through stakeholder consultations for each major industrial sector.

"The goal is to achieve the optimum environmental solution overall for each site," says the DOE.


Britain's approach cuts a path followed most recently by the U.S. Environmental Protection Agency, which introduced the Common Sense Initiative last year. (Please see *TerraScope* Vol. 2, #1, Winter 1995.) The EPA regime uses a mix of regulatory and voluntary measures across industrial sectors, replacing a regulatory system that is widely perceived as too complicated and rigid.

Canada, currently without a formal

pollution prevention law, is set to step into line with the U.S. and the EU. Ottawa recently released for consultation a draft federal pollution prevention strategy which proposes a combination of legislation, voluntary initiatives and economic instruments.

At the same time, a federal parliamentary committee is now reviewing the Canadian Environmental Protection Act. Many representations to the parliamentary committee from a variety of Canadian stakeholders emphasized the importance of

pollution prevention.

"It's no longer acceptable to pollute—now you must prevent it," says Dennis Durrant, Special Advisor at Environment Canada's National Office of Pollution Prevention. "It's a fundamental change in governance and environmental protection." 

**"It's no longer acceptable to pollute—now you must prevent it...it's a fundamental change in governance and environmental protection."**

—Dennis Durrant, Special Advisor,  
National Office of Pollution  
Prevention, Environment Canada

*TerraScope* provides Canadian decision-makers with timely news and analysis of international environmental affairs. It is produced quarterly for the International Affairs Branch of Environment Canada by Synergistics Consulting, Toronto. The views expressed do not necessarily represent those of Environment Canada or the Government of Canada.

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